

TEACHING WITH TECHNOLOGY



In the first of a new series **CATHERINE ATTARD** explores the use of ICT in the classroom. In this article she highlights the use of the Web as a tool for teaching mathematics.

New technologies continue to change every aspect of home, life and work: the way we communicate, calculate, analyse, shop, make presentations and socialise. Arguably, computer technologies are changing the very ways we think and make sense of our world (Collins & Halverson, 2009). *The Australian Curriculum* acknowledges the importance of teaching and learning with technology by including the use of information and communication technology (ICT) as one of the skills, behaviours and attributes, identified as general capabilities, that students need to “succeed in life and work in the twenty-first century” (ACARA, 2010, p. 8).

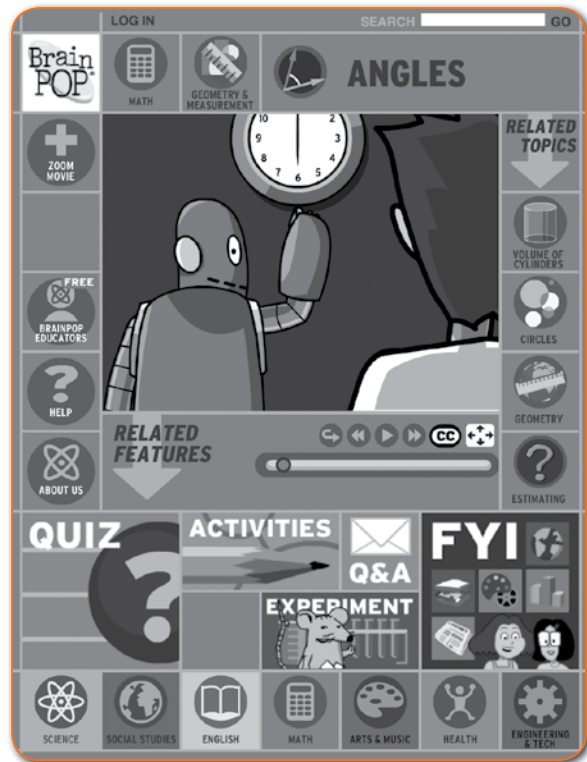
With ICT embedded within the content descriptions and elaborations across each of the three strands in the Australian Curriculum comes a responsibility for teachers to incorporate a repertoire of ICTs that serve to enhance student learning and engagement with mathematics. As with any teaching and learning resources, ICTs have the potential to succeed or fail depending on how they are implemented. This is the first of a series of articles that will highlight a range of technological resources for you to use in your mathematics classroom. In each issue we will feature two or three different resources with ideas for implementation and integration with the Australian Curriculum: Mathematics. In this edition we are featuring two very different ICTs: one, a subscription-based Internet site, Brainpop, which can

be used as a teaching resource; the other, Tarsia, is a free software application designed for creating mathematics resources.

Brainpop

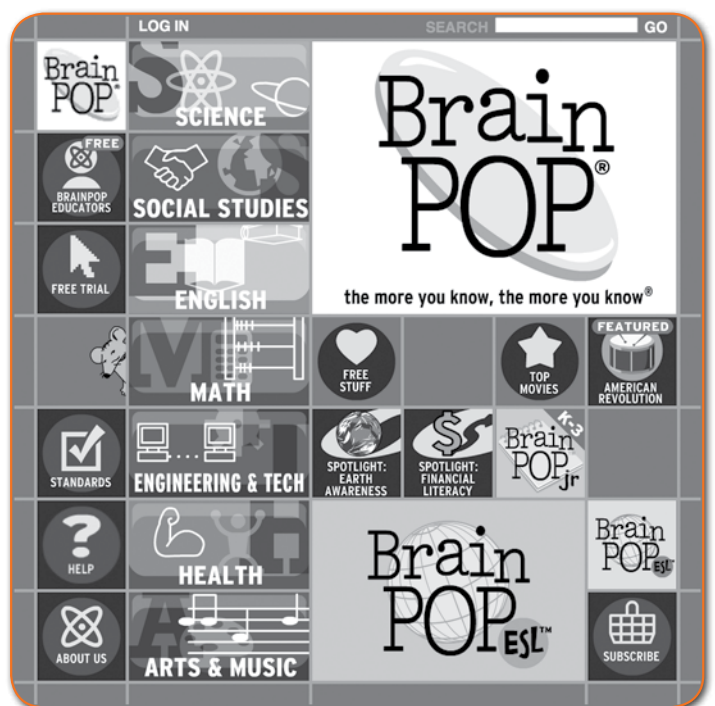
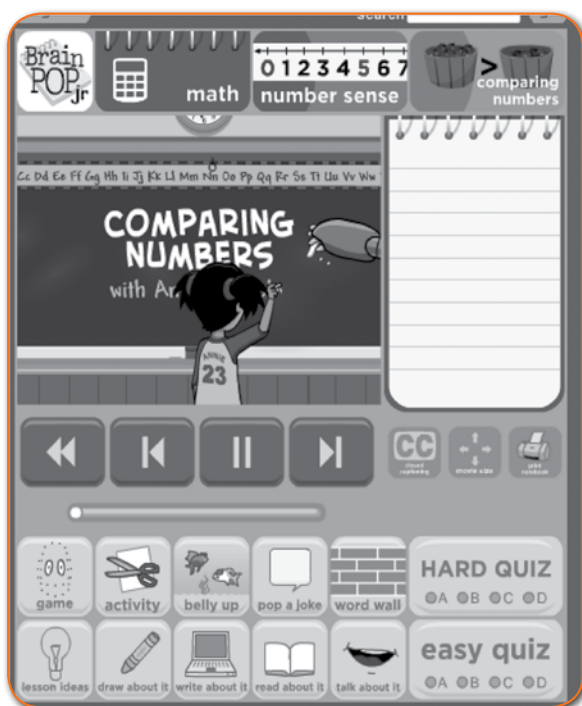
Brainpop (www.brainpop.com) is an American website that consists of animated, curriculum-based content from all subject areas. Brainpop is aimed at primary and secondary students. Brainpop Jr (www.brainpopjr.com), a separate subscription, is available for students in the early years up until Year 2. I have used this website within several primary classrooms and at a tertiary level with both undergraduate and post-graduate students and have found that the animations are a very high quality and extremely engaging for all audiences.

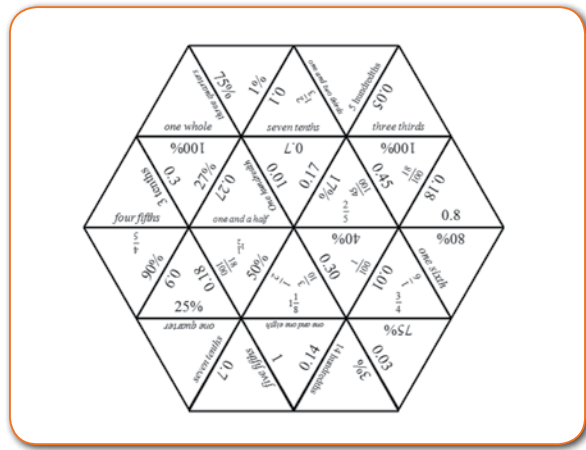
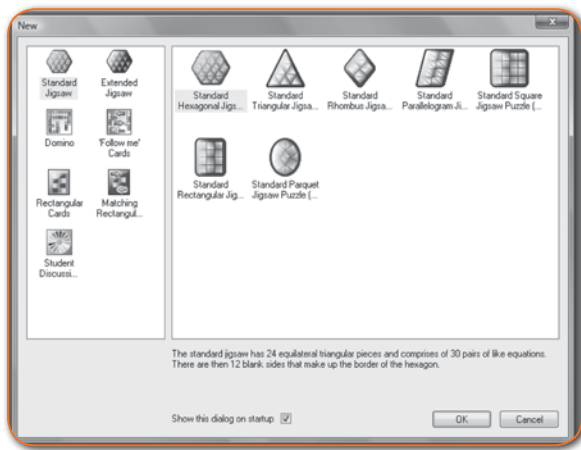
The animations feature two characters, Tim and Moby, who use age-appropriate language and humour to explain various mathematics content. The animations in Brainpop are supported by online quizzes which can be used as assessment tasks, lesson plans, graphic organisers and additional student activities. One aspect of Brainpop Jr that I particularly like is the “word wall” that is provided with each mathematics topic, listing



content-specific words and symbols. The word walls provide a good starting point for a classroom mathematics word wall. Brainpop Jr also includes a wide range of support material including age appropriate topic-based jokes and activities that encourage students to “talk about it”, “write about it” and “read about it”.

Although an excellent resource, teachers need to be aware that there are aspects of





Brainpop that need to be edited or avoided in terms of the content being written for an American audience. Content such as the use of imperial measurement, American currency and different mathematical terminology (e.g., “trapezoid” rather than “trapezium”) can be avoided provided teachers view the material before exploring it with students. The animations have the ability to be paused, fast-forwarded and rewind so inappropriate content can easily be circumvented. Alternatively, teachers can use the content in question to stimulate interesting mathematical discussions, for example, the use of imperial measurement versus metric measurement.

The topic animations can be used to introduce new material and for revision purposes with whole class, small groups and individual students. Although they are primarily useful for introducing information about a topic, the quizzes and support material provide opportunities for *Understanding*, *Fluency* and *Reasoning*, three out of the four proficiency strands in the Australian Curriculum. Brainpop and Brainpop Jr offer a free trial subscription and I would highly recommend this resource for use in an Australian primary mathematics classroom.

Formulator Tarsia

Formulator Tarsia, from Hermitech Laboratory in the Ukraine, is a free software

package that allows teachers to create mathematics puzzles based on jigsaws and domino activities. The puzzles come in a variety of shapes and can be differentiated to address a diversity of learning needs by changing the number of pieces within each puzzle and altering the content. Puzzles can be used in small-group activities and can be printed on coloured paper and laminated for re-use. They are an ideal way to incorporate the proficiency strands of *Problem solving*, *Reasoning* and *Fluency*.

Teachers can use the software to design their own puzzles to suit specific topic areas and can also download pre-made puzzles from a variety of websites simply by entering “tarsia puzzles” into a search engine. One website in particular, mrbartonmaths.com (www.mrbartonmaths.com/jigsaw.htm), has 300 downloadable puzzles. However, beware of the content as this website is from the United Kingdom and, as with all resources, should be checked against the Australian Curriculum content. Formulator Tarsia software is available for downloading from www.mmlsoft.com and is highly recommended as a useful tool to create classroom resources.

Reference

- Collins, A. & Halverson, R. (2009). *Rethinking education in the age of technology: The digital revolution and schooling in America*. New York: Teachers College Press.